

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-143 (Cancelled)

144. (Currently Amended) A method of execution-instruction delegation ~~between among multiple~~ elemental processing resources of at least two different types, the multiple elemental processing resources comprising two or more elemental processing resources of a first type each sharing two or more elemental processing resources of a second type with the other, the method comprising:

obtaining an execution instruction, wherein the execution instruction is obtained at one of ~~at least two of~~ the elemental processing resources of ~~[[a]]~~ the first type;

determining whether an operation-code within the execution instruction is incapable of being executed by the one elemental processing resource of the first type and thus should be delegated to one of the shared elemental processing resource of ~~[[a]]~~ the second type ~~different from the first type and shared by at least two elemental processing resources of the first type;~~

executing the execution instruction with the one elemental processing resource of the first type, if the operation-code within the execution instruction should not be delegated to any the ~~other~~ elemental processing resource of the second type; and

if the execution instruction should be delegated, routing the execution instruction to the ~~other~~ a shared elemental processing resource of the second type, of the at least two of that type, that is capable of executing the operation code~~[[,]] if the operation-code within the execution instruction is for the other elemental processing resource.~~

145. (Original) The method of claim 144, wherein the method is completed within a single processing cycle.

Claims 146-154 (Cancelled)

155. (Original) The method of claim 144, wherein the operation-code indicates a type of resource on which to execute.

156. (Previously Presented) The method of claim 144, wherein at least one elemental processing resource of the first type is an originating processing resource.

157. (Currently Amended) The method of claim 144, wherein one or more of the elemental processing resources of the first type is an integer processing unit.

158. (Currently Amended) The method of claim 144, wherein one or more of the elemental processing resources of the second type is a mathematical processing unit.

159 (Cancelled)

160. (Currently Amended) The method of claim 144, wherein one or more of the elemental processing resource of the second type is a vector processing unit.

Claims 161-163 (Cancelled)

164. (Currently Amended) The method of claim 144, wherein one or more of the elemental processing resource of the second type is an execution-instruction processing cache.

165. (Original) The method of claim 144, further comprising routing the execution instruction through an execution-instruction signal router.

166 (Cancelled)

167. (Previously Presented) The method of claim 144, wherein a first elemental processing resource executing a first individual thread may sleep while a second elemental processing resource executes delegated execution-instructions from the first individual thread.

168. (Previously Presented) The method of claim 144, wherein an execution-instruction signal causes various elemental processing resources dynamically to turn on and off to maintain a desired level of power draw while maximizing processing throughput.

169. (Currently Amended) The method of claim 144, further comprising generating an execution-instruction signal from at least one of the elemental processing resources, wherein the execution-instruction signal from the elemental processing resources themselves shuts off processing resources while idling.

170. (Currently Amended) The method of claim 144, further comprising generating an execution-instruction signal from at least one of the elemental processing resources, wherein an execution-instruction signal from processing resources themselves turn on processing resources when execution-instruction signal processing is required.

171. (Previously Presented) The method of claim 144, wherein the elemental processing resources are communicatively disposed on a same die.

172. (Previously Presented) The method of claim 171, wherein an execution-instruction signal router is on the same die with elemental processing resources.

Claims 173-1614 (Cancelled)

1615. (Currently Amended) A method of execution-instruction delegation among multiple interdependent processing resources, the processing resources comprising multiple elemental processing resources of (a) at least two IPU type processing resources and (b) two or more at least one other type of elemental processing resources of an other type comprising, in any combination, one or more of either an MPU type, an instruction delegating cache type, an encryption or decryption type or a vector type, that are the multiple elemental processing resources being configured to perform processing operations according instructions in an instruction set and are but being individually incapable of servicing at least one instruction in the instruction set, the elemental processing resources being configured such that a first and a second of the IPU type processing resources each share at least two of the other type elemental processing resources the method comprising:

receiving one of multiple execution-instructions from a thread at a first Instruction Processing Unit (IPU) of the at least two IPU type processing resources;
processing the first execution-instruction using the first IPU;
receiving an other execution-instruction from the thread at the first IPU;
determining that the other execution-instruction from the thread can not be processed by the first IPU;
delegating the other execution-instruction from the thread to ~~a processing resource, of a type other than an IPU type processing resource, that is~~ one of the two or more elemental

processing resources of the other type that is shared between the first IPU and a second IPU of the at least two IPU type processing resources, the type of the processing resource other than the IPU type processing resource being such that it ~~and~~ can process the other execution-instruction from the thread; and

maintaining the thread in the first IPU in a sleep state until an indicator that the processing of the other execution-instruction from the thread by the other type processing resource is returned.